

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior listing of claims in this application.

1. (currently amended) A process conditions change monitoring system of a scanning-type electronic microscope equipped with a monitoring unit for monitoring changes in exposure conditions by use of electron beam images of a resist ~~patterns~~ pattern, comprising:

an image detection unit for obtaining electron beam images of said resist ~~patterns~~ pattern;

a dimensional characteristic quantity detection means for detecting the respective dimensional characteristic quantities of a first pattern portion and a second pattern portion, which are different from one another in the tendency of the changes in dimensional characteristic quantities, showing ~~the edge widths and/or pattern widths~~ of the ~~resist patterns~~, pattern, against changes in exposure conditions;

a memory storing ~~the~~ models for establishing logical linking between exposure conditions and dimensional characteristic quantities; and

a calculating unit calculating changes in exposure conditions relating to the focus of said scanning-type electronic microscope by applying, to said models, those dimensional characteristic quantities of said first pattern portion and said second pattern portion that have been acquired by said dimensional characteristic quantity detection means.

2. (previously presented) The process conditions change monitoring system of the scanning-type electronic microscope according to claim 1, further comprising a correcting unit for correcting exposure condition according to the changes in exposure conditions that have been calculated by said calculating unit.

3. (currently amended) A process conditions change monitoring system of a scanning-type electronic microscope equipped with a monitoring unit for monitoring changes in exposure conditions relating to focus value and ~~exposure conditions~~, by use of electron beam image of a resist ~~patterns~~, pattern, comprising:

an image detection unit for obtaining electron beam images of said resist ~~patterns~~ pattern;

a dimensional characteristic quantity detection means for detecting the respective dimensional characteristic quantities of the edge widths of a first pattern portion and a second pattern portion, which are different from one another in the tendency of the changes in the dimensional characteristic quantities of the edge widths of the resist ~~patterns~~ pattern, against changes in focus value;

a memory storing ~~the~~ models for establishing logical linking between focus value and dimensional characteristic quantities; and

a calculating unit for calculating changes in focus value by applying, to said models, those dimensional characteristic quantities of said first pattern portion and said second pattern portion that have been acquired by said dimensional characteristic quantity detection means.

4. (previously presented) The process conditions change monitoring system of the scanning-type electronic microscope according to claim 3, wherein said exposure conditions include exposure levels, in that said models establish logical linking between exposure levels and dimensional characteristic quantities, and wherein said calculation unit also calculates changes in exposure level by applying to the corresponding models the dimensional characteristic quantities, including the pattern widths of said first pattern portion and said second pattern portion that have been acquired by said detection unit.

5. (previously presented) The process conditions change monitoring system of the scanning-type electronic microscope according to claims 3 or 4 above, further comprising correcting the focus value according to the changes in the focus value that have been calculated by said calculating unit.

6. (previously presented) The process conditions change monitoring system of the scanning-type electronic microscope according to claims 3 or 4 above, wherein said calculating unit calculates tolerances on focus value deviations and on exposure energy changes.

Claim 7-10 (canceled).